

**2025/FYUG/ODD/SEM/
BOTDSM-301/302T (A/B)/231**

FYUG Odd Semester Exam., 2025

BOTANY

(5th Semester)

Course No. : BOTDSM-301/302T

Full Marks : 70

Pass Marks : 28

Time : 3 hours

*the figures in the margin indicate full marks
for the questions*

Candidates have to answer either from
Option—A or from Option—B

OPTION—A

Course No. : BOTDSM-301T

(Plant Biochemistry)

UNIT—I

Answer any *two* questions :

2×2=4

- (a) What is the chemical composition of carbohydrate? Give one example of carbohydrate.

(Turn Over)

(2)

(b) What are the functions of carbohydrate in living organism?

(c) What do you mean by glycoprotein? Write the function of glycoprotein.

2. Answer any one question :

(a) Discuss about the structures and properties of monosaccharide and disaccharide with examples.

(b) Differentiate between homo- and hetero-polysaccharide. Discuss about the structures and functions of homo- and hetero-polysaccharide.

UNIT—II

3. Answer any two questions :

2×2=

(a) What is the chemical composition of amino acid? Write the structure of glycine.

(b) What is peptide bond? How is it formed?

(c) Write two functions of protein.

Answer any one question :

(a) Discuss the different structural forms of protein with examples. What are the chemical bonds responsible for stabilization of protein structure? 6+4=10

(b) Discuss about the methodologies involved in protein extraction and purification. 5+5=10

UNIT—III

2×2=4

Answer any two questions :

(a) What do you mean by glycolipid? Give one example.

(b) Differentiate between nucleoside and nucleotide.

(c) What is essential fatty acid? Give one example.

Answer any one question :

10

(a) Differentiate between saturated and unsaturated fatty acids. Classify fatty acids with examples. 2+8=10

(Turn Over)

(4)

- (b) What are the different types of DNA? With the help of suitable diagram, discuss about double helical structure of DNA.

3+7=

UNIT—IV

7. Answer any two questions :

2×2=

- (a) Differentiate between aerobic and anaerobic respirations with examples.
- (b) Where does glycolysis take place in a cell? What is the end-product of glycolysis?
- (c) Write about two factors that affects respiration.

1+1=

8. Answer any one question :

1

- (a) Write in detail about TCA cycle. What is glycogenolysis?

8+2=1

(b) Write short notes on the following :

5×2=1

- (i) Pentose phosphate pathway
- (ii) Gluconeogenesis

UNIT—V

2×2=4

Answer any two questions :

- (a) What is enzyme? Write two functions of enzyme.

- (b) What do you mean by activation energy?

- (c) What is cofactor? Give one example.

10

Answer any one question :

- (a) What do you mean by active site? With the help of suitable diagram, describe lock and key and induced fit model associated with enzyme action.

2+4+4=10

(b) Write short notes on the following :

5×2=10

- (i) Competitive inhibition of enzyme
- (ii) Factors affecting enzyme activity

(6)

OPTION—B

Course No. : BOTDSM-302T

(Plant Ecology)

UNIT—I

1. Answer any two questions :

- (a) Write a brief note on the basic concepts of ecology. $2 \times 2 = 4$
- (b) Define dynamism.
- (c) Define homeostasis.

2. Answer any one question :

- (a) Discuss the interrelationship between the living world and the environment. 10
- (b) Write notes on the following : $5 \times 2 = 10$
 - (i) Levels of organization
 - (ii) Component of environment

UNIT—II

3. Answer any two questions :

- (a) Write the importance of water. $2 \times 2 = 4$
- (b) Write the importance of soil.
- (c) What is watertable?

10

4. Answer any one question :

- (a) Discuss the physical, chemical and biological processes of weathering of soil.
- (b) Discuss soil profile with suitable diagram.

UNIT—III

5. Answer any two questions :

- (a) What do you mean by ecological amplitude? $2 \times 2 = 4$
- (b) What are the characteristics of population?
- (c) What do you mean by ecotone and edge effect?

6. Answer any one question :

- (a) Discuss the process of plant succession. What are the different types of plant succession? 10
 $5 + 5 = 10$
- (b) Write notes on the following : $5 \times 2 = 10$
 - (i) Keystone species
 - (ii) Attributes of plant community

(Turn Over)

(8)

UNIT—IV

7. Answer any two questions :

2×2=4

- (a) Differentiate between food chain and food web.
- (b) What do you mean by primary and secondary productivity?
- (c) What do you mean by biomass and standing crop?

8. Answer any one question :

10

- (a) Describe the structure and function of terrestrial ecosystem.
- (b) What do you mean by biogeochemical cycle? Describe the nitrogen cycle with schematic representation.

2+8=10

UNIT—V

9. Answer any two questions :

2×2=4

- (a) Write the scientific names of two plants of North-East India.
- (b) Write the characteristic features of one floristic region of India.
- (c) Name two endemic species of India.

(9)

Answer any one question :

10

- (a) Discuss the major phytogeographical division of India with emphasis on local vegetation.

(b) Write notes on the following :

5×2=10

- (i) Theory of tolerance
- (ii) Endemism
